To: Bacanskas, Lisa[Bacanskas.Lisa@epa.gov]
Cc: Birnbaum, Rona[Birnbaum.Rona@epa.gov]; Miller, Andy[Miller.Andy@epa.gov]
From: Costa, Dan
Sent: Wed 2/22/2017 6:42:54 PM
Subject: RE: ADVANCE NOTIFICATOIN MANUSCRIPT - Smith et al. Extreme Precipitation Events and Influenza Incidence in Temperate Climate Zones

Thanks for the feedback Lisa.

dlc

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Dan Costa, Sc.D., DABT

National Program Director for Air, Climate and Energy (ORD/EPA)

Mail: D143-01, EPA Research Campus, Research Triangle Park, NC 27711; FedEx Address: 4930 page Rd, Durham, NC 27703

Office: D142C; ph: 919.541.2532; work cell: Ex. 6 - Personal Privacy personal cel: Ex. 6 - Personal Privacy ; fax 919.541.0065

Email: costa.dan@epa.gov; personal: Ex. 6 - Personal Privacy

From: Bacanskas, Lisa
Sent: Tuesday, February 21, 2017 1:34 PM
To: Costa, Dan <Costa.Dan@epa.gov>
Cc: Birnbaum, Rona <Birnbaum.Rona@epa.gov>; Miller, Andy <Miller.Andy@epa.gov>
Subject: FW: ADVANCE NOTIFICATOIN MANUSCRIPT - Smith et al. Extreme Precipitation Events and Influenza Incidence in Temperate Climate Zones
Importance: High

Dan,

Thanks for sharing: we give this paper a "Yay". Also passing along minor comments from colleagues who reviewed:

- Ex. 5 - Deliberative Process

Ex. 5 - Deliberative Process

Best,

Lisa

Lisa Bacanskas

Climate Change Division

U.S. Environmental Protection Agency

202-343-9758

From: Birnbaum, Rona
Sent: Wednesday, February 08, 2017 2:15 PM
To: Bacanskas, Lisa <Bacanskas.Lisa@epa.gov>; Crimmins, Allison <Crimmins.Allison@epa.gov>; Jantarasami, Lesley <Jantarasami.Lesley@epa.gov>; Kolian, Michael <Kolian.Michael@epa.gov>; Sarofim, Marcus <Sarofim.Marcus@epa.gov>; DeAngelo, Ben <DeAngelo.Ben@epa.gov>
Subject: FW: ADVANCE NOTIFICATOIN MANUSCRIPT - Smith et al. Extreme Precipitation Events and Influenza Incidence in Temperate Climate Zones
Importance: High

Lisa, please serve as the point-person for all comments. All on this list, please have a look.

From: Costa, Dan
Sent: Wednesday, February 08, 2017 12:28 PM
To: Birnbaum, Rona <Birnbaum.Rona@epa.gov>
Cc: Miller, Andy <Miller.Andy@epa.gov>
Subject: FW: ADVANCE NOTIFICATOIN MANUSCRIPT - Smith et al. Extreme Precipitation Events and Influenza Incidence in Temperate Climate Zones
Importance: High

Hi Rona

This manuscript was sent to us as a potentially highly visible paper. If you could let us know yeh or neh within 2 weeks; comments as you deem necessary. Thanks

Hope all is well in the rarified air of DC…

dlc

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Dan Costa, Sc.D., DABT

National Program Director for Air, Climate and Energy (ORD/EPA)

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Email: costa.dan@epa.gov; personal: Ex. 6 - Personal Privacy

From: Rodan, Bruce
Sent: Tuesday, February 07, 2017 11:49 AM
To: Costa, Dan <Costa.Dan@epa.gov>
Cc: Sjogren, Mya <Sjogren.Mya@epa.gov>; Hines, Ronald <Hines.Ronald@epa.gov>
Subject: FW: ADVANCE NOTIFICATOIN MANUSCRIPT - Smith et al. Extreme

Precipitation Events and Influenza Incidence in Temperate Climate Zones
Importance: High

Dan,

Attached is an Advance Notification Manuscript from NHEERL. I have reviewed – it elucidates a relationship between extreme precipitation events and influenza hospitalization incidence, and interprets this in the context of climate-induced increases in such events in the N.E. United States. I recommend this manuscript move forward to OAR (contact?) in advance of its submission for peer review and publication.

Bruce Rodan

From: Hines, Ronald
Sent: Tuesday, February 7, 2017 9:25 AM
To: Rodan, Bruce <rodan.bruce@epa.gov>
Cc: Gwinn, Maureen <gwinn.maureen@epa.gov>; Osaka, Anna <Osaka.Anna@epa.gov>; Sjogren, Mya <Sjogren.Mya@epa.gov>; Benson, William <Benson.William@epa.gov>; Fisher, Bill <Fisher.William@epa.gov>; Saterson, Kathryn <Saterson.Kathryn@epa.gov>; Baxter, Lisa <Baxter.Lisa@epa.gov>
Subject: ADVANCE NOTIFICATOIN MANUSCRIPT - Smith et al. Extreme Precipitation Events and Influenza Incidence in Temperate Climate Zones
Importance: High

Good morning Bruce,

NHEERL has determined the manuscript entitled "Extreme Precipitation and Emergency Room Visits for Influenza in Massachusetts: A Case-Crossover Analysis" authored by Smith GS (ORISE), Messier KP (U North Carolina), Crooks J (Nat'l Jewish Hlth & Colorado Sch Public Hlth), Wade TJ (NHEERL), Lin C (U North Carolina) and Hilborn ED (NHEERL) requires advance notification. This work was conducted as part of the Air, Climate and Energy research program. Once cleared, the manuscript will be submitted to *Environmental Health Perspectives*.

This study addresses the conundrum of the known peak incidence of influenza incidence during the wintertime in temperate climes, but during the rainy season in tropical climes. The investigative team hypothesized that episodes of extreme precipitation associated with climate change also would be associated with an increased incidence of influenza in the northeastern United States. To test this hypothesis, the team evaluated the association between extreme precipitation (>99th percentile) events and risk of emergency room (ER) visits for influenza in Massachusetts during the 2002 to 2008 timeframe using a case-crossover analysis. Hospital administrative data included patient town of residence, date of ER visit, age, sex, and other diagnostic codes. Daily precipitation estimates were determined for each town using NOAA data. The study found that extreme precipitation events were associated with an adjusted odds ratio of 1.23 (95% CI: 1.16 to 1.30) for ER visits for influenza at days 0 to 6 after the precipitation event. When evaluated in more detail, an inverse association was observed at lags 0 and 1, no statistically significant association at lags 2 and 3, but significant associations at lags 4, 5 and 6, consistent with the incubation period for influenza. An even stronger association was observed for African Americans (odds ratio = 1.48, 95% CI 1.30 to 1.68). To our knowledge, this is the first report of an association between influenza and extreme rainfall events in a temperate climate and has implications for public health and susceptible populations as climate change progresses and episodes of extreme rainfall are forecast to increase. Although not directly assessed, the data also has implications regarding the economic impact for health care costs associated with an increased incidence of influenza associated with extreme rainfall events.

The data from this study are currently exempt from submission into Science Hub.

I have attached the manuscript and fact sheet for your consideration and routing. We look forward to any comments you or others might have.

Ron Hines, PhD

Associate Director for Health

US EPA, NHEERL

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